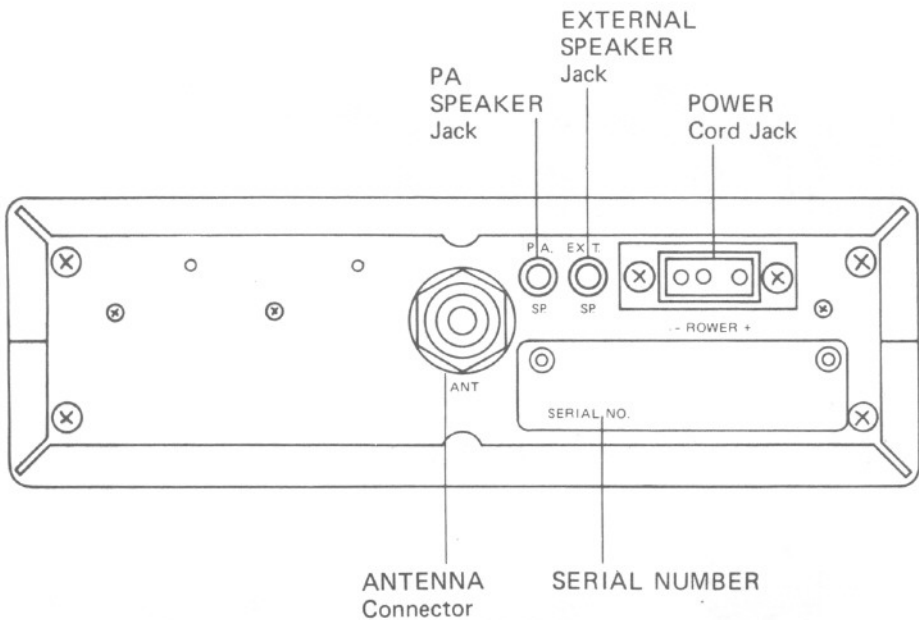


uniden



**AX144 CB RADIO
OWNERS MANUAL**

RADIO BACK PANEL VIEW



IMPORTANT!

The above pictorial display shows the location of the various accessory, antenna, and power receptacles, as well as the SERIAL NUMBER.

You are urged to record your model number and your SERIAL NUMBER in the spaces provided below:

Model _____

SERIAL NUMBER _____

SPECIFICATIONS

GENERAL

Channels	40 AM, 40 LSB, 40 USB
Frequency Range	26.965 to 27.405 MHz
Frequency Control	Phase Locked Loop(PLL) synthesized circuitry
Frequency Tolerance	±0.005%
Frequency Stability	0.001%
Operating Temperature Range	-10°C to +50°C
Microphone	Plug-in type; dynamic with push-to-talk switch and coiled cord
Input Voltage	13.8V DC nominal, 15.9V max., 11.7V min. (positive or negative ground).
Current Drain	Transmit: AM full mod., 2.2A; SSB Maximum output, 2A. Receiver: AM & SSB with maximum audio output, 0.6A.
Cabinet Dimensions	7-9/32(W) x 9-5/64(D) x 2-9/32(H)
Weight	4.5 Lbs
Antenna Connector	UHF, SO-239
Semiconductors	47 transistors, 5 integrated circuits, 66 diodes and 6 light emitting diodes.
Meter	Illuminated; indicates relative power output and received signal strength, green receive LED.
Indicators	LED display; channel, emergency channel, TX/RX and mode.

TRANSMITTER

Power Output	AM,SSB Maximum Legal Output Power
Modulation	AM, high and low level Class B
Intermodulation Distortion	SSB: 3rd and 5th order, better than -25 dB. 7th and 9th order, better than -35 dB.
SSB Carrier Suppression	Better than -55 dB
Unwanted Sideband	Better than -50 dB
Frequency Response	AM and SSB: 350 to 2500 Hz.
Output Impedance	52 ohms, unbalanced
SSB Filter	10.695 MHz, 8 pole monolithic type 6 dB @ 4.2 kHz 60 dB @ 7.0 kHz
Output Indicators	Meter shows relative RF output power; red transmit LED.

RECEIVER

Sensitivity	SSB: Better than $.25 \mu\text{V}$ for 10 dB (S+N)/N at greater than $\frac{1}{2}$ watt of audio output AM: Better than $.5 \mu\text{V}$ for 10 dB (S+N)/N at greater than $\frac{1}{2}$ watt of audio output
Selectivity	SSB and AM: 6 dB @ 4.2 kHz, 60 dB @ 7.0 kHz
Cross Modulation	More than 50 dB
Image Rejection	More than 75 dB
I.F. Frequency	AM and SSB: 10.695 MHz
AM and SSB RF Gain Control	Adjustable for optimum signal reception.
Automatic Gain Control	(AGC): Less than 10 dB change in audio output for inputs from 10 to 500,000 microvolts.
Squelch	Adjustable; threshold less than $.5 \mu\text{V}$.
Noise Blanker	RF type, effective on AM and SSB.
Clarifier Range	± 1.0 kHz
Audio Output Power	3 watts into 8 ohms
Frequency Response	350 to 2500 Hz
Distortion	Less than 10% at 3 watts output.
Built-in Speaker	16 ohms, round
External Speaker (Not Supplied)	8 ohms; disables internal speaker when connected.
PA SYSTEM	
Power Output	3 watts into external speaker.
External Speaker for PA	8 ohms (not supplied)

INTRODUCTION

UNIDEN has combined superb workmanship and modern styling with the very latest state-of-art circuitry to bring you the new AX 144 Citizens Band Transceiver. It has been especially designed to give you maximum performance and reliability. Your AX 144 is completely factory aligned and quality assurance tested. To obtain the maximum benefit and pleasure from your AX 144 please read very carefully the contents of this manual before attempting to install or operate the transceiver.

FEATURES

- **ALL SOLID STATE:** IC and Transistorized construction, with low current drain, for a long, trouble-free life.
- **FULL 40-CHANNEL OPERATION:** PLL frequency, synthesizer circuitry allows transmission and reception on all 40-channels on AM, USB and LSB without the purchase of any additional crystals.
- **LARGE LED CHANNEL DISPLAY:** Channel number is displayed by use of LED (light emitting diode) display for ease of channel selection.
- **CLEAN SIGNAL:** Transmitter audio processing circuitry produces a clean signal with maximum legal modulation, for best range.
- **QUIET RECEPTION:** Effective squelch and automatic noise limiter and an RF noise blanker for superior quieting.
- **EFFECTIVE AGC:** Receiver amplified automatic gain control (AGC) reduces the effect of differences in received signal strengths. No distracting "blasting" and "fading" of signals.
- **AN EFFICIENT TRANSMITTER:** Provides maximum legal output power to the antenna.
- **PUBLIC ADDRESS FUNCTION:** Useful for paging and announcements.
- **TRI-COLOR LED MODE INDICATOR:** Green for AM mode, Yellow for USB mode and Red for LSB mode.
- **EMERGENCY CH 9 SWITCH:** This switch enables you to select emergency channel (CH 9) regardless of the channel selector switch setting.

CHANNEL INFORMATION

Channel	Channel Frequency in MHz	Channel	Channel Frequency in MHz
1	26.965	21	27.215
2	26.975	22	27.225
3	26.985	23	27.255
4	27.005	24	27.235
5	27.015	25	27.245
6	27.025	26	27.265
7	27.035	27	27.275
8	27.055	28	27.285
9	27.065	29	27.295
10	27.075	30	27.305
11	27.085	31	27.315
12	27.105	32	27.325
13	27.115	33	27.335
14	27.125	34	27.345
15	27.135	35	27.355
16	27.155	36	27.365
17	27.165	37	27.375
18	27.175	38	27.385
19	27.185	39	27.395
20	27.205	40	27.405

To insure that you obtain the maximum performance from this radio, please read carefully the following descriptions and operating instructions.

NOTE: This radio has been designed for operation in the 11 meter Citizens Band Radio Service. It uses a frequency synthesizing circuit with Phase Locked Loop(PLL) techniques to provide crystal controlled transmit and receive operation on all 40 channels. The PLL circuitry assures ultraprecise frequency control. It is designed to meet the **Department of Communication** requirements applicable to equipment operating in the Citizens Band Radio Service, and is not to be used for any other purpose. **MS 312** of the D.O.C. regulations defines operation in this service, and you are required to read and understand these regulations prior to operating this equipment.

INSTALLATION

Location

Plan the location of the transceiver and microphone bracket before starting the installation. Select a location that is convenient for operation and does not interfere with the driver or passenger in the vehicle. In automobiles, the transceiver is usually mounted to the dash panel with the microphone bracket beside it.

Mounting and Connection

This radio is supplied with a universal mounting bracket. The transceiver is held in the bracket by the two thumb screws supplied, permitting adjustment to the most convenient angle. The bracket must be mounted with the machine screws supplied. The mounting surface must be mechanically strong. Proceed as follows to mount the transceiver:

1. After you have determined the most convenient location in your vehicle, hold the radio with mounting bracket in the exact location desired. If nothing interferes with mounting it in the desired position, remove the mounting bracket bolts. Before drilling the holes, make sure nothing will interfere with the installation of the mounting bolts.
2. Connect the antenna cable plug to the standard receptacle on the rear panel. Most CB antennas are terminated with a type PL-259 plug which mates with the receptacle on the rear panel.
3. Connect the DC power input wire with the fuse (red) to +12V DC. This wire extends from a plug which connects to the rear panel. In automobile installations, +12V DC is usually obtained from the accessory contact on the ignition switch.

This prevents the set being left on accidentally when the driver leaves the car and also permits operating the radio without the engine running. You can locate the accessory contact on most ignition switches by tracing the power wire from the AM broadcast receiver in the car.

Note: See ground connection under GENERAL INFORMATION for more detail.

4. Connect the black wire to ground. This is usually the chassis of the car. Any convenient location with good electrical contact may be used. (remove paint).
5. Mount the microphone hanger on the side of the unit or near the unit, using two screws supplied. When mounting in an automobile, place the hanger on the dash so the microphone is easily accessible.

GENERAL INFORMATION

GROUND CONNECTION

This radio may be installed and used in any 12V DC negative or positive ground system vehicle. Most new U.S. and foreign made cars or small trucks use a negative ground system while some older cars and some newer large trucks may use a positive ground system.

1. Negative ground system: Connect the Red power lead from the radio to the positive or (+) battery terminal or other convenient point, and connect the Black power lead to the chassis or vehicle frame or (-) battery terminal.
2. Positive ground system: In the case of positive ground system, connect the Black power lead from the radio to the negative or (-) battery terminal or other convenient point, and connect the Red power lead to the chassis or vehicle frame or (+) battery terminal.

ANTENNA

This radio is designed to operate into a 52 ohm CITIZENS RADIO antenna. Best results will be obtained from your transceiver if you use a good antenna, properly installed. (Refer to the antenna installation instructions included with your antenna.) A vertically polarized quarter-wavelength whip antenna provides the most reliable operation and greater range. The shorter loaded-type whip antennas are more attractive, compact and adequate for applications where the maximum possible distance is not required. Also, the loaded whip antennas do not present the problems of height imposed by the full quarter-wavelength whip.

Mobile whip antennas utilize the metal body of the vehicle as a ground plane. When mounted on a corner of the vehicle, they are slightly directional, in the direction of the body of the vehicle. For all practical purposes, however, the radiation pattern is non-directional. A slight directional characteristic will be observed only at extreme distances. A standard antenna connector (Type SO-239) is provided on the transceiver for easy connection to a standard PL-259 cable termination.

When installed in a boat, the transceiver will perform most efficiently when antenna used has been specifically designed for marine applications.

Before installing the transceiver in a boat, consult your dealer for information regarding an adequate grounding system and prevention of electrolysis between fittings in the hull and water.

BASE STATION OPERATION

To operate the transceiver from your home or office, using regular house current as the power source, you will require a separate power supply capable of supplying 2.5 amps at a 13.8V DC output with a nominal input voltage of 120 volts AC, 50/60Hz. Simply connect the red (+) and black (-) leads of the transceiver to the corresponding DC terminals of the power supply.

NOTE: Do not attempt to operate this transceiver by connecting directly to 117V AC. When AC power supply is used with the transceiver for base station operation any Citizens Band beam, dipole, ground plane or vertical antenna may be used. A ground plane vertical antenna will provide the most uniform horizontal coverage.

REMOTE SPEAKER

The external speaker jack (EXT. SPKR) on the rear panel is used for remote receiver monitoring. The external speaker should have 8 ohms impedance. When the external speaker is plugged in, the internal speaker is disconnected.

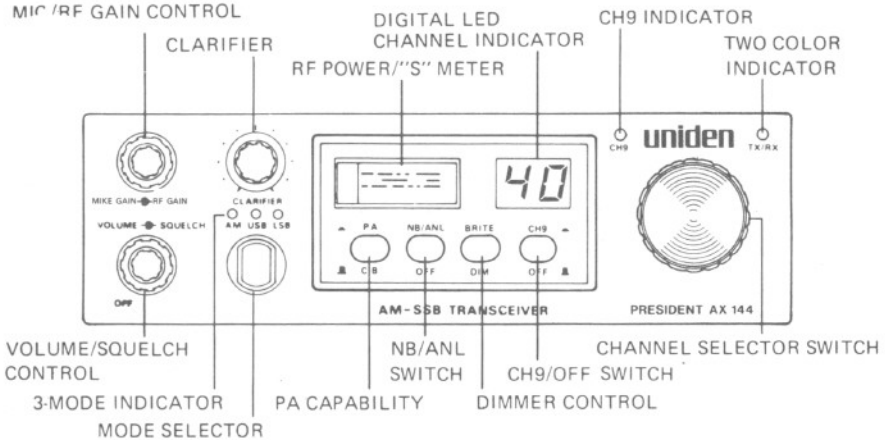
PUBLIC ADDRESS

An external 8 ohm 4-watt speaker must be connected to the (PA SPKR) jack located on the rear panel when the transceiver is used as a public address system. The speaker should be directed away from the microphone to prevent acoustic feedback. Physical separation or isolation of the microphone and speaker is important when operating the PA at high output levels.

OPERATING INSTRUCTIONS

The AX 144 operates on 40 AM channels, 40 Upper Side Band channels and 40 Lower Side Band channels.

When you receive the SSB signal in the proper mode, audio sound may be either too high pitched or low pitched, indicating that your receiver may not be tuned to the exact same frequency as the transmitter to which it is listening. The AX 144 is equipped with a Clarifier. By tuning the Clarifier, you can slightly change the frequency of the receiver, so you get a normal tone.



OPERATING CONTROLS

Your AX 144, designed for ease of operation, is provided with the following operating controls:

- 1. OFF/ON VOLUME:** To turn the transceiver on, rotate the control clockwise past click. To turn the transceiver off, rotate the control counterclockwise past click. Rotate the control clockwise for a comfortable audio volume level.
- 2. CHANNEL SELECTOR:** This switch is used to select any one of the 40 Citizens Band channels. Channel 9 has been reserved by the D.O.C. for emergency communications involving the immediate safety of life of individuals or immediate protection of property. Channel 9 may also be used to render assistance to a motorist.
- 3. MODE SELECTOR:** This switch selects AM, USB or LSB mode of operation. This selector changes the mode of operation of both transmitter and receiver simultaneously.

Set the selector to the mode on which you wish to communicate. For easier identification of the mode, LED mode indicator is provided in three different colors, green for AM, yellow for USB, and red for LSB.

4. **SQUELCH:** The squelch control is normally set to a position which just eliminates undesired background noise with no signal present. With the audio volume adjusted to a satisfactory level, rotate the Squelch control clockwise to the point where the sound from the speaker is cut off. In this position, there will be no sound from the speaker until a signal is received. In order to hear weak signals, it may be necessary to rotate the Squelch control counterclockwise, allowing some background noise to be heard.
5. **CLARIFIER:** The clarifier is normally set to the center position. This feature has several uses and can greatly enhance receiver operation. If a receive signal is slightly off frequency, this control can be operated to optimize the receive signal. This control is primarily intended to tune in SSB signals, but, it may be also used to optimize the AM signal.
6. **MIKE GAIN:** This control is used to adjust, as required, microphone input sensitivity for optimum amount of modulation in transmit. UNIDEN's citizen's band transceivers have been designed to permit the user to attain levels of modulation up to 100% depending on the setting of the microphone gain control, using the microphone provided with the unit. UNIDEN's automatic compression and peak limiting circuits assure maximum modulation with minimum distortion.
7. **DIMMER SWITCH:** This switch is used to adjust the brightness of the LED channel display and the meter. DIM position reduces brightness.
8. **CH9 SWITCH:** This switch is for use when emergency communication is needed on the emergency channel CH9. Pressing the CH9 switch activates CH9 regardless of the position of the channel selector switch. When CH9 switch is pressed, the channel display is blanked and the CH9 indicator is activated.
9. **PA-CB SWITCH:** This control engages the PA function. The PA function should not be used unless an external speaker is connected. In the CB position, the PA function is disabled and the radio will transmit and receive on the selected channel.
10. **NB/ANL SWITCH:** When the switch is placed in the NB/ANL position, both of RF Noise Blanker and Automatic Noise Limiter circuits are activated. The NB is very effective for repetitive impulse noise such as ignition noise. The ANL reduces annoying hash-type noises.
11. **RF GAIN:** This control is used primarily to optimize reception in strong signal areas. Gain is reduced by counterclockwise rotation of the control.

INDICATOR FUNCTION

1. **S/R/METER:** This meter displays relative transmitter RF output power when transmitting, and input signal strength when receiving. The meter is illuminated when power is on, the illumination can be adjusted by the DIMMER switch for optimum brightness.
2. **TX/RX INDICATOR:** The TX/RX light in the upper right corner of the front panel lights in red color when the microphone button is pressed and transmitter is in operation. It lights in green color when the microphone button is released and the receiver is in operation.

PRESS TO TALK MICROPHONE

The receiver and transmitter are controlled by the press-to-talk switch on the microphone. Press the switch and the transmitter is activated. Release the switch to receive. When transmitting, hold the microphone about three inches from your mouth and speak at a normal voice level.

RECEIVE OPERATING PROCEDURE

1. Place the CB-PA switch in CB position.
2. Turn the set on by turning the VOLUME CONTROL clockwise, past click.

NOTE: Microphone must be plugged in for receiver to operate.

3. Set the VOLUME CONTROL to a comfortable level.
4. Set the Mode Selector Switch to the desired mode.
5. Listen to the background noise from the speaker. Turn the SQUELCH CONTROL slowly clockwise, until the noise just disappears. The Squelch is now properly adjusted. The receiver will remain quiet until a signal is received. Do not advance the control too far, or some of the weaker signals will not be heard.
6. Set the Channel Selector to the desired channel.
7. Adjust the CLARIFIER to clearly receive SSB or AM signals.

TRANSMIT OPERATING PROCEDURE

1. Select the desired channel of transmission.
2. If the channel is clear, depress the push-to-talk switch on the microphone and speak in a normal voice.

WARNING

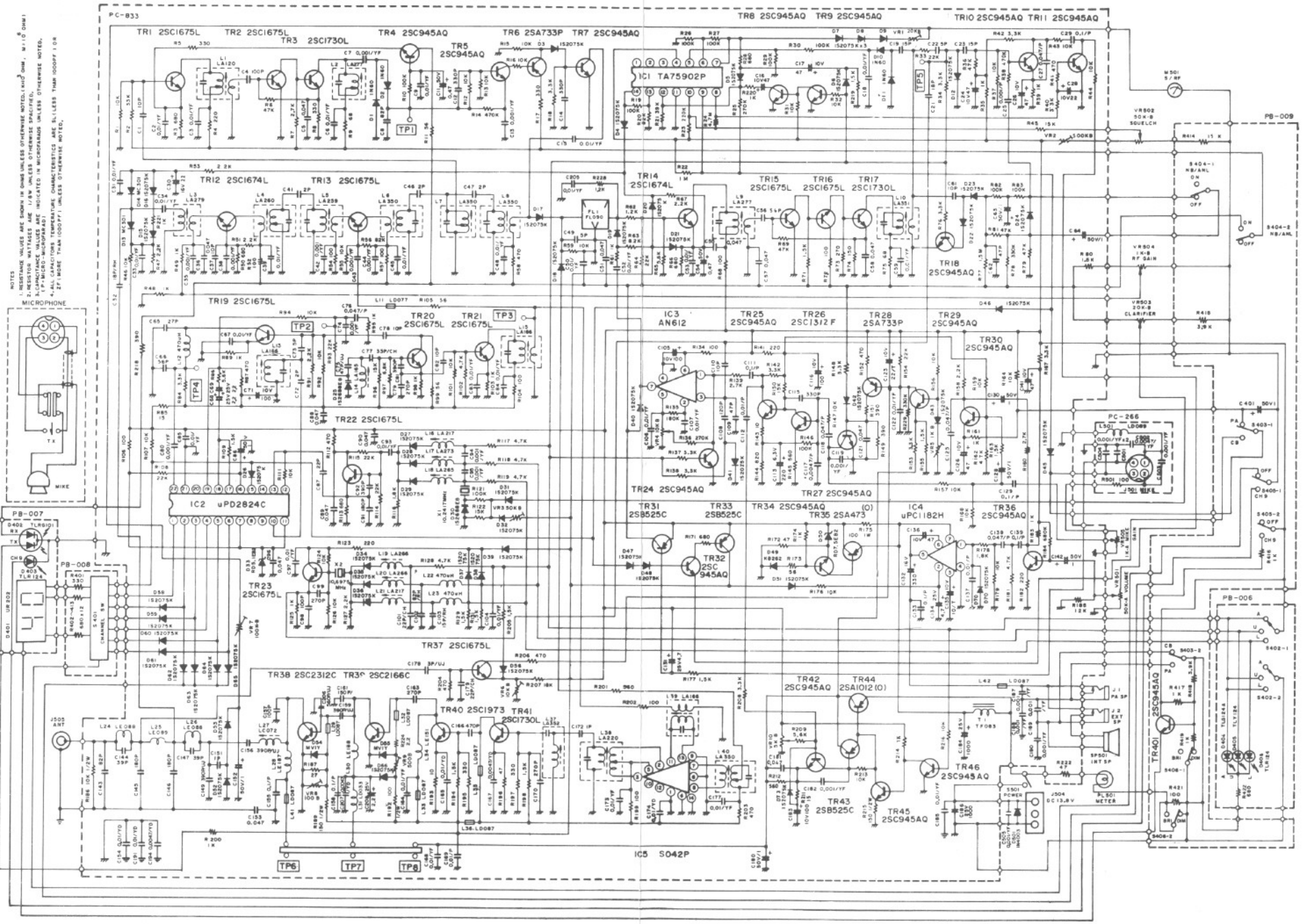
Operation of this equipment requires a valid station license issued by the Department of Communication Do not transmit with your equipment until you have a license .

MAINTENANCE AND ADJUSTMENT

This transceiver is especially designed for the environment encountered in mobile installations. The use of all solid state circuitry and its light weight result in high reliability. Should failure occur, however, replace parts only with identical parts. Do not substitute.

CIRCUIT DIAGRAM FOR AX144

NOTES:
 1. RESISTOR VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K=10³ OHM, M=10⁶ OHM)
 2. RESISTOR RATINGS ARE 1/4 WATT UNLESS OTHERWISE NOTED.
 3. CAPACITANCE VALUES ARE IN MICROFARADS UNLESS OTHERWISE NOTED.
 4. ALL CAPACITORS ARE POLYPROPYLENE UNLESS OTHERWISE NOTED.
 5. ALL TUBES ARE 6X4 UNLESS OTHERWISE NOTED.
 6. ALL TRANSISTORS ARE 2N OR 2N5 UNLESS OTHERWISE NOTED.



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12 MONTHS FULL WARRANTY

WARRANTOR: UNIDEN AUSTRALIA PTY. LTD. 345 Princes Highway, Rockdale, N.S.W. 2216 ("UNIDEN").

ELEMENTS OF WARRANTY. Uniden Australia warrants, for the duration of this warranty, its UNIDEN CB Product to be free from defects in materials and craftsmanship with only the limitation or exclusions set out below.

WARRANTY DURATION. This warranty shall terminate and be of no further effect One (1) year after the date of original purchase of the Product or at the time the Product is (a) damaged or not maintained as reasonable and necessary, (b) modified, (c) improperly installed, (d) is repaired by someone other Warrantor for a defect or malfunction covered by this Warranty, or (e) used in a manner or purpose for which the Product was not intended.

PARTS COVERED. This Warranty covers all components of the Products.

STATEMENT OF REMEDY. In the event that the Product does not conform to this Warranty at any time while this Warranty is effective, Warrantor will repair the defect and return it to you prepaid, without charge for parts, service, or any other costs incurred by Warrantor or its representatives in connection with the performance of this Warranty. In addition, if the Product contains a defect or malfunction which is not repaired after a reasonable number of attempts by Warrantor to repair the Product, the Product or defective component will at our discretion, will be replaced without charge, when the defective product is delivered to the warrantor at 345 Princes Highway, Rockdale, N.S.W. 2216 free and clear of all liens and encumbrances. Please note that while the Product will be remedied under this Warranty without charge. **THIS WARRANTY DOES NOT COVER OR PROVIDE FOR THE REIMBURSEMENT OR PAYMENT OF INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

Some states do not allow this exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

PROCEDURE FOR OBTAINING PERFORMANCE OF WARRANTY: In the event that the Product does not conform to this Warranty, the Product should be shipped prepaid, to Warrantor at 345 Princes Highway, Rockdale, N.S.W. 2216. **THE ORIGINAL OR COPY OF THE SALES RECEIPT OR OTHER VALID EVIDENCE OF THE DATE OF THE ORIGINAL PURCHASE MUST ACCOMPANY THIS PRODUCT.**

LEGAL REMEDIES: This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state

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